Remarks

Claims 2, 3, and 6-15 are now pending in this application. Applicants have amended claim 14 and added new claim 15 to clarify the present invention. Applicants respectfully request favorable reconsideration of this application.

The Examiner rejected claims 2, 3, 6, 7, 11, 13, and 14 under 35 U.S.C. § 102(b) as being anticipated by U.S. patent 5,034,185 to Ueda et al.

Ueda et al. does not disclose the present invention since, among other things, Ueda et al. does not disclose a plurality of first recesses arranged in the upper part of the blades and a plurality of second recesses arranged in the lower part of the blades. Additionally, Ueda et al. does not disclose recesses operative to permit moderator access to the cruciform center to control burn up of fissile material along the length of the absorber blade as recited in independent claim 14, regardless of the number and type of the recesses. As discussed at col. 37, lines 12-29 and as shown in Fig. 36A, Ueda et al. only discloses an engagement recess 633 that may be formed at the top of a portion of the upper end of a wing of a control blade. This passage goes on to describe that the engagement recesses supports the blade on a support that laterally projects from an extending portion of a central tie rod.

Also, Ueda et al. does not disclose a plurality of recesses where the recesses arranged in the upper part of the blade are wider than a majority of recesses arranged in the lower part of the blade. This is particularly true in view of the Examiner's definition of the upper and lower

portions of the blade disclosed by Ueda et al. In fact, Ueda et al. does not disclose any recesses arranged in the lower portion of the blade. Therefore, even if it were possible to consider that Ueda et al. discloses two types of recesses as the Examiner contends, Ueda et al. does not disclose any recesses arranged in the lower portion of the blade. Therefore, Ueda et al. does not disclose a structure that includes a plurality of recesses where the recesses arranged in the upper part of the blade are wider than a majority of recesses arranged in the lower part of the blade.

Additionally, Ueda et al. does not disclose an absorber blade that includes an inner portion that lacks neutron absorber material as recited in independent claims 13-15. It appears from the drawings of Ueda et al. that the structure inlcudes absorber material distributed throughout the entire thickness of the blades.

Additionally, Ueda et al. contrary to the Examiner's statement, Fig. 7 does not show a lower mean value of absorber material in the upper part than in the lower part of the structure. Clearly, there are many regions of the "lower portion" of the blade, which represents about seven-eights of the blade as defined by the Examiner, that have a lower mean value of absorber material than the "upper portion" of the blade, which the Examiner defines as about the top one-eighth of the blade. In fact, the lower limit of both ends of the data line in the graph shown in Fig. 7 are virtually at the same level. Much of the portion of the blade having a level indicated by the sloping line in Fig. 7 lies at a lower point than the stepped portion identified by the Examiner. Additionally, there is no indication that patent drawings be so accurate that they can be relied upon for the type of measurements that the Examiner proposes.

Furthermore, as pointed out by the Applicant, as described at col. 9, line 22-53, in the region W, "the neutron irradiation rate is comparatively low, but the subcriticality becomes smaller with respect to this region when the control blade is fully inserted to shut down the reactor." This passage continues stating, "It is therefore necessary to pack in the region W a large amount of neutron absorber of a high reactivity worth." Ueda et al. goes on to state that, "In consequence, this region is provided with housing holes 14a which are arranged with a reduced pitch P between the centers of the holes, as shown in FIG. 12A, or are formed by being elongated in the diametral direction corresponding to the axial direction of the control blade, and which are arranged close to each other in the axial direction, as shown in FIGS. 2A, 12C and 12D. The amount of a high-reactivity-worth neutron absorber 18 packed in the housing holes 14a is greater." As is apparent from these passages, a high amount of absorber material is present in the upper portion of the structure.

Still further, Ueda et al. states that, "It is not necessary to increase the reactivity value of a lower region l_3 of each wing 13." Region l_3 is in the bottom half of the structure, as shown in Fig. 1. Ueda et al. goes on to state that in region l_3 are arranged gas plenums 16. The gas plenums 16 are formed of the housing holes 14 in which no neutron absorber is packed. It is apparent from these passages that Ueda et al. does not disclose a structure that includes a control rod having a lesser mean quantity of absorber material per unit length of the control rod in an upper part than in a lower part.

In view of the above, Ueda et al. does not disclose all elements of the present invention as recited in claims 2, 3, and 6-15. Since Ueda et al. does not disclose all elements of the present

invention as recited in claims 2, 3, and 6-15, the present invention, as recited in claims 2, 3, and 6-15, is not properly rejected under 35 U.S.C. § 102(b). For an anticipation rejection under 35 U.S.C. § 102(b) no difference may exist between the claimed invention and the reference disclosure. *See Scripps Clinic and Research Foundation v. Genentech, Inc.*, 18 U.S.P.Q. 841 (C.A.F.C. 1984).

Along these lines, anticipation requires the disclosure, in a cited reference, of each and every recitation, as set forth in the claims. *See Hodosh v. Block Drug Co.*, 229 U.S.P.Q. 182 (Fed. Cir. 1986); *Titanium Metals Corp. v. Banner*, 227 U.S.P.Q. 773 (Fed. Cir. 1985); *Orthokinetics, Inc. v. Safety Travel Chairs*, Inc., 1 U.S.P.Q.2d 1081 (Fed. Cir. 1986); and *Akzo N.V. v. U.S. International Trade Commissioner*, 1 U.S.P.Q.2d 1081 (Fed. Cir. 1986).

In view of the above, the reference relied upon in the office action does not disclose patentable features of the present invention. Therefore, the reference relied upon in the office action does not anticipate the present invention. Accordingly, Applicants respectfully request withdrawal of the rejections based upon the cited reference.

In conclusion, Applicants respectfully request favorable reconsideration of this case and early issuance of the Notice of Allowance.

If an interview would facilitate the prosecution of this case, Applicants urge the Examiner to contact the undersigned at the telephone number listed below.

The undersigned authorizes the Commissioner to charge insufficient fees and credit overpayment associated with this communication to Deposit Account No. 19-5127, 19378.0012.

Respectfully submitted,

Date: 8-7-03

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